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THE
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☞See advertisement on last page.

Poetry.

LINES.

Where shall we make her grave ?
Oh ! where the wild flowers wave,
In the free air !
Where shower and singing bird
'Midst the young leaves are heard—
There—lay her there.

Harsh was the world to her !
Now may sleep minister
Balm for each ill.
Look on sweet nature's breast,
Let the meek heart find rest,
Deep, deep and still !

Murmur glad watersby !
Faint gales with happy sigh
Come wandering o'er
That green and mossy bed,
Where on a gentle head,
Storms beat no more !

What though for her in vain
Falls now the bright spring rain,
Plays the soft wind ?
Yet still from where she lies
Should blessed breathings rise,
Gracious and kind.

Therefore let song and dew
Thence in the heart renew
Life's vernal glow !
And o'er that holy earth
Scents of the violet's birth,
Still come and go.

Oh ! then where wild flowers wave,
Make ye her mossy grave,
In the free air !
Where shower and singing bird
'Midst the young leaves are heard—
There—lay her there !

WHAT IS WOMAN.

What is woman ? Man's sweet angel ?
Gentle, tender, calm, and kind—
Ever loving, ever faithful,
Is her soft and soothing mind;
A beauteous flower, born to blossom,
Giving gladness to the eye:
Half designed for man's fond bosom,
Half a creature of the sky !

What is woman ? Ask her sorrow,
Know how deeply she can feel;
But when hope her heart will borrow,
Mark what joy she can reveal;
O'er her cheek each pure emotion
Of her soul is seen to fly,
As fair clouds with chaste devotion
Fleet o'er Luna's face on high.

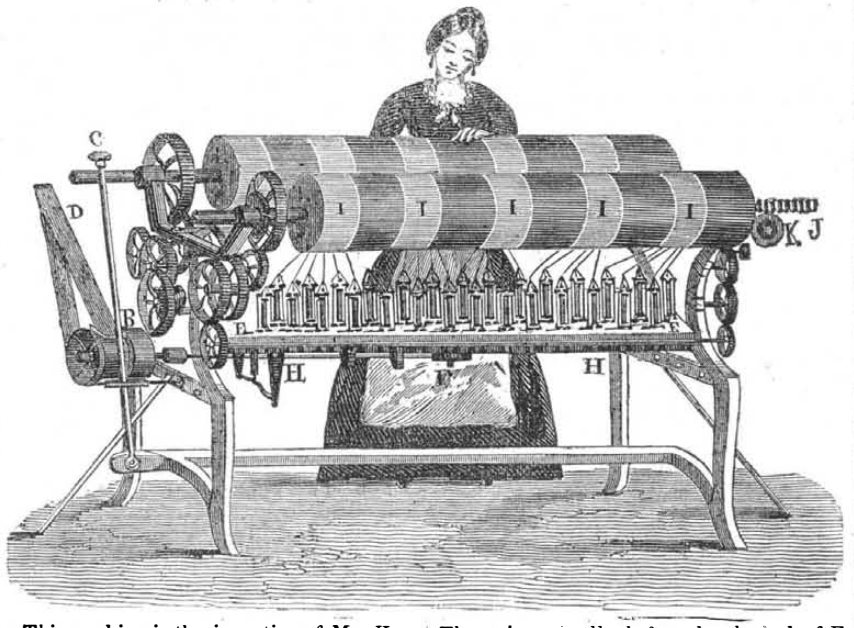
Thus she is a flower's sweet blossom,
Giving gladness to the eye;
Half designed for man's fond bosom,
Half a creature of the sky !

AUTUMN.

The Summer days have vanished,
Like a dream at break of day;
The sweet, fair flowers are banished,
That used to deck our way.
But the grapes, in many a cluster,
Hang purple from the bough;
And the Heavens glow with lustre—
"Tis glorious Autumn now ?

NEW MACHINE FOR MAKING WEAVER'S HEDDLES.

FIGURE 1.

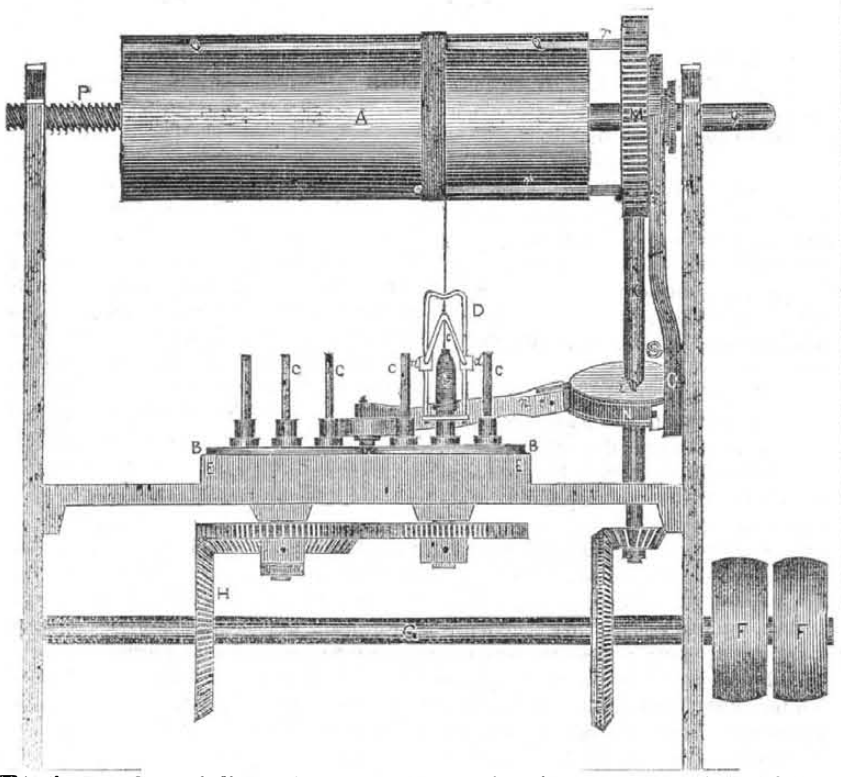


This machine is the invention of Mr. Kassimir Vogel, late of Lowell, Mass., and secured to him by letters patent last year, which patent is now held jointly with him by Mr. Thomas of Saccarappa, Maine. This machine was exhibited at the Fair and was pronounced to be the most ingenious new Machine exhibited. It will be perceived that this machine is not the result of a sudden glance of genius, but the produce of a great range of original thought and correct mechanical arrangement.

The object of the machine is to make weaver's heddles from the thread, casting the loop by braiding instead of knotting, and performing triple the amount of work and better than can now be done by hand.—A patent is also secured for the peculiar eye of the heddle, so that both machine and its results are protected.

DESCRIPTION.—Fig. 1, is a perspective view and shows gangs of different heddles winding on the beams. A A, is the iron framing. B, are the driving and slack pulleys. C, is the lever to gear and ungear. E E, are the bobbins with the thread to make the heddles.—There is a small shaft under the bed of E, which by small cog wheels on the same operate and revolve the bobbins by gearing into F. I I, are the heddles after the eye is formed winding up on the beams L L. The gang of wheels at the left are for the purpose of connecting the shafts of the beams to be driven by the main shaft below. The number of eyes to the foot in the heddles can be increased or diminished by the gearing of these small wheels K, is a small bearing for the shaft of L, and J is the shaft with a screw cut on part of it. This is for winding the heddle gradually along the beam, and as K is a grooved and wormed faced pulley driven slowly by the small gang of wheels at the right, the shaft J, is wormed slowly through its bearings carrying the beam to let the heddles wind one after another on the same. The heddles are formed of a double cord which is twisted by the bobbins revolving and the eyes or loops are formed by the bobbins being interlocked, braiding the two strands at the two points which form the eye of the heddles.—The section views will explain the operations better in detail.

FIGURE 2.



☞As the same letters indicate like parts on all the following engravings, we shall describe them collectively. Fig. 2 is a side elevation. Fig. 3 is a top view of the revolving tables and spindles, and fig. 4 is an end elevation. Fig. 5 is a view of the underside of the machine, showing the gearing by which the tables that carry the spindles are made to revolve.

(*For Figs.* 3, 4 *and* 5, *see page* 44.)

RAIL ROAD NEWS.

Erie Rail Road to this City.

The Paterson and Ramapo Railroad is finished and a communication is opened up with this city and the Erie Rail Road via Paterson, N. J. This is a branch road and laid with the heaviest H rail and cost only about $21,000 per mile total $350,000. The first train passed over the road on Wednesday last, and every thing was in perfect order. Their four new cars made by the Springfield (Mass.) Company, and the locomotives New York and Ramapo, built by Ketchum, Rogers & Governeur, Patterson, N. J. were tried and worked to admiration. The ladies' car is provided with mirrors, dressing room, &c. One of the locomotives traversed a portion of the road—with tender, baggage car and three passenger cars attached,—at the rate of forty-one miles an hour !

Syracuse and Oswego Railroad.

Twenty-four miles of this road are now ready for use, and regular trains will run to Fulton on and after Monday next. The estimated cost of the entire road, 35 miles, with a rail weighing 57 lbs. to the yard, the Syracuse Star says, will be about $400,000, and the maximum grade not to exceed twenty feet to the mile. John Lathrop, Esq., is the Chief Engineer.

Costly Railroad Bridge.

The bridge across the Richelieu River, near Montreal, on the line of the Atlantic and St. Lawrence Railroad, is represented in the Montreal papers to be one of the most solid and substantial on this side of the Atlantic. It is over eleven hundred feet long, and it is at an elevation of fifty feet from the water. Its cost is stated to be about $110,000. The Montreal Gazette states that the President of the Atlantic and St. Lawrence Railroad, accompanied by the engineers and a party of gentlemen, lately examined the work upon the road as far as St. Hyacinth, thirty miles from Montreal to which spot, it is thought the cars can run by the first of next month. Nine miles are already in running order.

Great Speed of a Locomotive.

Recently in England, on the Great Western Railroad, seventy-seven miles were passed over by an express train in seventy-eight minutes twenty-nine seconds, including stoppage of five minutes thirty-five seconds. Fifty three miles of the journey were performed in forty-nine minutes thirteen seconds. The speed in some cases was kept up at seventy, seventy-two and seventy-seven miles an hour. This rate of speed was attained, it will be observed on a broad guage track seven feet wide, and with engines having driving wheels eight feet in diameter.

The Erie Railroad must show some point of superiority to convince the public of the benefit of the broad guage here.

Locomotive Speed.

The Lowell Courier says that a new engine called the Camilla, built by Hinkley & Drury, and designed for speed, on the Boston and Lowell Railroad, has driving wheels of 6½ feet diameter, and is capable of running a mile in a minute.

Forty miles of the New York and Erie Railroad, south and east from Dunkirk, are graded and ready for the superstructure. On the 12 miles formerly laid down and completed the iron has been taken up as well as the timber sills, and housed for preservation.

As soon as the new railroad is finished from New York to New Haven, it is said that the whole distance from Boston will be accomplished in the short space of eight hours.

The officers of the Customs in England retained Iridium ore imported in a French vessel, and rated the duty as an extract, at 5s. per lb.

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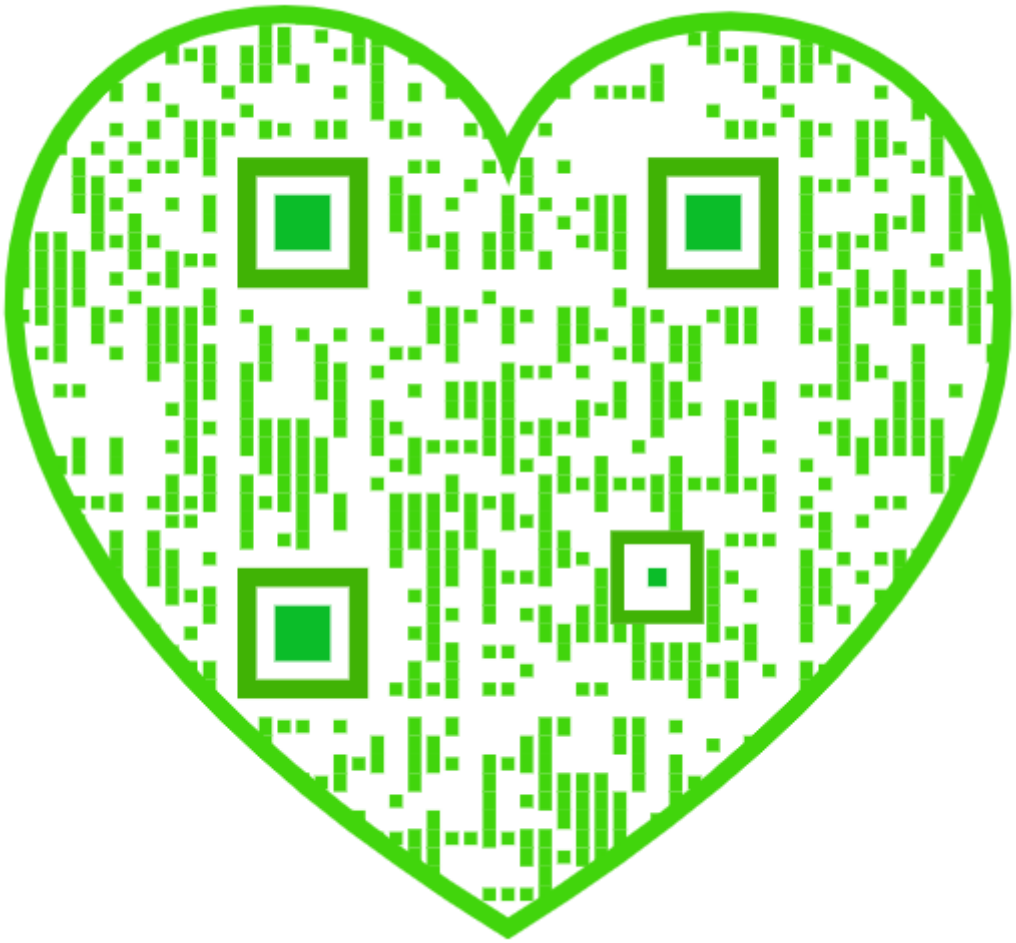

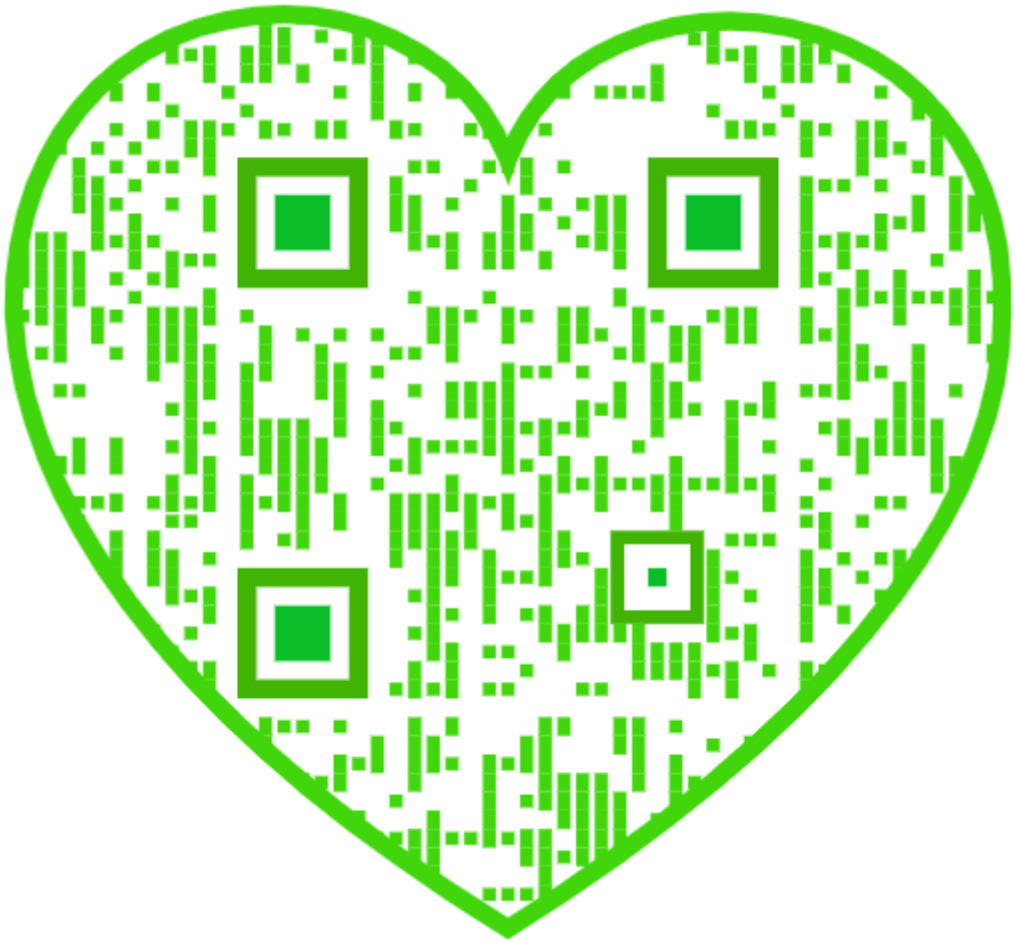

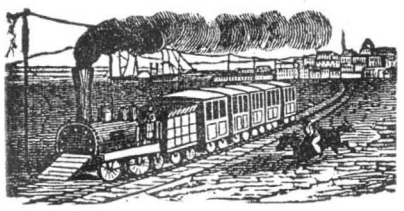

The Fair of the American Institute.

No. 3.

The Twenty-first Annual Fair of the American Institute closed on Friday evening of last week. The closing address was delivered by Gen. Talmage, the same gentleman who delivered the closing address last year, and who was blamed by one of our Boston correspondents, for praising English for American cutlery—State Prison labor for that of the honest products of our embrowned mechanics, but as the Institute was incorporated by our Legislature to "cherish labor and promote domestic economy", it was in perfect accordance with the conduct of their Charter givers, for the Institute to encourage convict as well as virtuous free labor.

The Address was an illogical, incongruous mass displaying no small amount of ignorance. He stated that our agricultural population "paid our taxes and fought our battles" and that all the boon Agriculture had been able to obtain was the publication a few years past, of a report from the Patent Office embracing a few matters of agriculture. He did not allude to the decided neglect of our mechanics, exhibited by government and the Institute—Our agriculturists should get at least 75 per cent of government favor, because they average this amount in proportion to the number of our inhabitants,—this would be right. Our mechanical classes should at least get 25 per cent of government encouragement, but have they got this amount of favor, this amount of just protection? Not they. The State of New York has a Geological and Agricultural Department at Albany, supported at no small expence—and there is not a single spindle, loom, model, or mandril to be seen in the whole establishment. The *Life*—of the American Institute, is the exhibition of works of mechanical and artistical invention and skill,—take from the Fair the works of our mechanics and artists, and it would be a miserable display of crazy brick bats, rotten bags of hops, and stewed apples in a milk pan, and although we have an excellent State Agricultural Society, and it would be the province of the Institute to encourage mechanical skill, it has studiously raised up the perpendicular of a Minor State Agricultural Association, and has endeavoured to buy and possess a Model Farm to spend the money that should be devoted to the encouragement of the Mechanic Arts.

Gen. Talmage forgot too, that the expensive reports by appointed committees by government to investigate into the sugar manufacture, and to make geological surveys, were more than mere Patent Office Reports. He also forgot or was ignorant of the fact, that the Patent Office was supported by mechanical inventions, and that the agricultural reports should not be made by that Department—that all such reports, were trespassing upon the nature of that Institution.

It is well known that the income of the Patent Office, last year, exceeded the outlay by $21,232 84. $465, was paid for agricultural statistics. The whole sum received by the Patent Office was $63,111 19, all for inventions, yet how have our mechanical classes been treated, in comparison with our agricultural classes, by the Patent Office? why so far from Gen. Talmage being correct, the agricultural reports of the Patent Office, have been most voluminous and valuable, while the invention reports, have been but very shabby affairs—a few pages only devoted to our mechanics and inventors. We say that the Patent Office should attend only to the duties of Inventors and inventions instead of devoting volumes to matter as valuable to those who pay the Patent Office revenue, as windle straws and winter greens. A great number of our inventors are perfectly enraged at the manner in which they have been treated, and no wonder. There is certainly a reform needed both in the arranging and printing of the Patent Office Reports. We know not where the fault lies, but there is a grievous fault somewhere.

These remarks have been illicited, by the address of Mr. Talmage—we want not only protection and encouragement to one class—but justice done to a certain class—a neglected but most valuable class—the very soul of our nation's greatness, as we can satisfactorily prove to any man.

CLASP COUPLING JOINTS.

The first premium for Mechanical Inventions was awarded for West and Thompson's Clasp Coupling Joint. Those who would desire to know more about this invention, will find it fully described and illustrated page 129 Vol. 3, Scientific American. We were the first to introduce this invention into public notice—since that period it has been patented both at home and abroad. We saw another coupling joint at the Fair to couple pipes without any bolts whatever, but it was very complicated and will never come into general use.

BLIND HINGES.

Quite a number of Blind fasteners &c., were displayed, among which we noticed particularly that of Mr. Talbot, manufactured at Taunton, Mass. This is a revolving Blind Hinge and it operates the Blind from the inside of the house without raising the sash, and answering all the purposes of a window lock at the same time.

DOOR SPRINGS.

The Door Spring of Mr. Thomas Peck, Syracuse, was the most simple exhibited at the Fair, and a great number of orders were given by persons who saw it. The Patent was issued last week.

DODGE'S BALANCE PUMP.

This pump, an engraving of which appeared in No. 2 of our present volume engaged no small share of attention. Owing to our readers having all a taste for Science and Art, great numbers of them visited the Fair, and Mr. Dodge's Pump was recognised and very highly praised.

It is not possible, as we have mentioned before, that one tithe of the articles exhibited can be described, and we must now take a brief review of some articles not mentioned before.

Mr. Hyde of Troy N. Y., exhibited a new Truck, the principal object of which was for the turning of rapid curves The plan of the truck is entirely new and relates to the side bearings, from the main central cross beam to the axles. This part is made of two continuous iron curved springs—double like a ribbon, forming a series of arches—and thus combining the best form for strength as well as the best mode of allowing the car to recurve on the one side and extend its curve on the other. We will be able to present an engraving and a fuller description of this valulable improvement to our railroad interests, in two weeks.

Woodworth's Planing Machine was exhibited by Messrs. Frink and Prentiss of Jersey City, also Mr. Carter's Model of Blanchard's Machine for turning irregular forms. These two machines were objects of very special attention, every mechanic seemed to know them and exhibited an interest, which we gleaned by their conversation—was raised by reading about them in the Scientific American. No machines have caused so many law suits in America or the wide world, as these two,—this speaks volumes for their value and importance.

Mr. Joseph Dixon, of Jersey City—a very ingenious and scientific gentleman, exhibited specimens of pure iron, and improved steel, also some of his superior crucibles. Mr. Dixon is well known for many valuable inventions, such as the duplication of engraved cylinders, improvements in the manufacture of iron and steel, and the best black lead crucibles in the country. Philadelphia and Baltimore were well represented. We noticed particularly a very neat and useful invention from Philadelphia. It was a Music Frame which turned the leaves of the music book while the operator was playing on the piano. The foot operates a stirrup, which moved a vibrating arm that regularly turned round catching a small rod between the leaves, bending it over and opening up a new page.

A portable *saw* mill from Baltimore, was a very ingenious and valuable machine, and was universally esteemed as such. The Furniture department was well stored, and Jewellery and *glass* of every description made no small show.

Woolen Cloths exhibited some improvement—but in the Cotton line, the Jeans of York Mills, Oneida Co. N. Y. and the Ginghams of Ida Mills, Troy, were this, as they were last Fair, by far the best—nothing like them.

Not being able to spare more room at this time, we will publish the prize medallist next week.

New Invention.

Our exchanges say that an invention for cutting stone is in operation in New Haven, which dresses down stone at the rate of a square foot in from one to two minutes, and with two attendants only, and a limited amount of steam power, doing the labor of more than a hundred men. There is said to be no mistake in the thing; and if so, it promises to make stone supersede brick, and revolutionize entirely our present mode of building. As we are not acquainted with its particular construction we cannot tell whether or not it differs from other Steam Stone Cutting machines.

Tanner's Sumach.

The Venetian sumach, (*Rhus coriaria*) so much used in tanneries, is imported in large quantities from Sicily, and from the South of France, and sells at $45 to $50 per ton. It is very distinct from all the American species in its growth and general appearance, with the exception of the Rhus copallinum, and it is superior to them all for manufacturing purposes.

The best mode of forming plantations would be from seeds, which may be imported from Naples, or the south of France. It is of easy culture, and propagates rather freely from suckers. The Rush coriaria, being a native of the South of Europe, it will not flourish to the northward of New York. On the light soils of New Jersey, which are there so prevalent, it would, no doubt grow well; but it would, probably, produce more shoots in the lower sections of the Southern States, where the climate is more congenial and mild.

Basements Unhealthy, Why.

They are naturally dark and not ventilated every day, as they should be; and the air is much worse near the floor, which renders such places generally unfit for small children to stay in. Parents and nurses should be very particular to remove the air by allowing the doors and windows to be frequently opened, to let in fresh air. O how much comfort and enjoyment, as well as prevention of ill health may be secured by a little care and attention to these matters!

Hydrophobia.

A cure for hydrophobia has been tried with complete success by Dr. Haller, of York, Pa., in consultation with Drs. McIlvain and Fisher. The patient, a lad twelve years of age, was bitten by a mad dog in April. Symptoms of hydrophobia appeared on the 2d of October, instant. The doctors ordered him to take two grains of acetate of lead and two grains Dover's powder every four hours—to drink feely of diluted acetic acid, and have his spine freely rubbed with equal parts of Granville's lotion and olive oil. Under this treatment, (although but little was hoped) he commenced in 10 hours to show symptoms of amendment and has been gradually improving. He took eighty grains of each article without producing any other sensible effect upon his system than tranquilizing the spasms and producing sound sleep.

Something Startling.

A German gentleman advertises that he has at last solved the problem which the greatest chemists have hitherto thought impossible, viz: by discovering an ingredient by means of which the azote of the atmosphere can be totally destroyed, and thus producing a perfect vacuum—a new, cheap, and valuable motive power being obtained. We are sceptical on this point and believe the inventor to be an enthusiast or worse.

Telescopes four and one half inches long when closed, of power sufficient to show Saturn's ring and some of the double stars, are now sold in London, with stand, case, &c. for fifteen dollars.

Cause of an Explosion.

A number of practical and scientific engineers having examined the cause of the explosion of the Concordia which recently happened on the Mississippi made the following report:

"That from the appearance of the boilers, there was at the time of the explosion a deficiency of water, though from evidence advanced it appears that the second engineer left watch some half an hour previous to the accident, and left with an adequate supply of water in the boilers. That it may be probable the flues in the larboard boiler were bare of water, in consequence of the boat having been listed to starboard considerably, when leaving Plaquemine, and when righted up, the water came in contact with the flue intensely heated by being left bare.

Prussic Acid.

Dr. Nesbitt, of the University of Glasgow was recently found dead in his room with a vial of prussic acid and one of ammonia beside him. A post mortem examination showed that he had taken some of the acid, probably as a narcotic, but finding that he had taken too much, it is supposed he had used the ammonia to counteract its effect.

New South Wales.

A manufactory of japanned leather is being most successfully prosecuted in Sydney. The article has not only superseded, to a great extent, that which was once imported largely from England for coach builders and others, but it is thought there will be eventually a a considerable export of the Sydney manufacture.

The new Satellite of Saturn, discovered by Professor Bond of Cambridge Observatory, in the United States, was discovered by Mr. Lassel of Starfield, on the 18th of September. The honor of the first discovery of course belongs to Professor Bond and his country. Mr. Lassel's telescope is one of the most powerful in Europe. Professor Bond writes to the Boston Traveller under date of 11th instant, that he has followed the new satellite through an entire revolution, and finds that a periodic time of twenty-one days approximately satisfies the observed positions.

On the coast of Africa, a British man-of-war chased a slave steamer, which, after leading her sixty miles from the coast, suddenly returned leaving the vessel of war to beat back, and in the meantime the steamer took on board her cargo of fifteen hundred slaves and was off.

A society was established in London recently, to be called the "Irish Amelioration Society," to employ the peasantry in the prepartion of peat fuel and charcoal; and by removing the peat, to effect the full reclamation of the bog lands.

Dr. Chalfice a writer on cholera considers that the Asiatic form of this disease is propagated by a minute insect which traverses districts like the blight with us.

If you multiply any given number by itself, say 8:—thus say 8X8—64; then take one from the multiplier and add it to the multiplied the product will always fall short by one of the former product. Thus:—from 8—7, one added to 8—9; 7×9—63.

The Montrose Review mentions the death of John Smith a labourer, who was wrapped in wet sheets, by George Steel, a hydropathic practitioner to cure him of rheumatic fever, and died within an hour. The doctor is to be tried for manslaughter.

The St. Louis Courier says that a company of stockholders residing in Kentucky, Indiana, Arkansas, Louisiana and Mississippi have organized themselves for the purpose of manufacturing cotton at Cannelton, about 120 miles below Louisville.

A rock of salt three hundred miles west of Fort Gibson Arkansas, furnishes salt equal to the whitest and finest table salt. It is obtained by the simple process of scraping the rock.

A diamond has been found in Borneo weighing 104 carats. It is said to be of the purest water, very regularly crystalised and will probably lose but little in polishing.

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The Electric Telegraph.

No. 2.

In our last we explained what electro magnetism was in a general sense, but in a specific sense, it is understood to relate only to the combination of a piece of horse shoe shaped soft iron surrounded with insulated helices of wire connected with a galvanic battery. The soft iron is only magnetic while under the influence of the galvanic current, and is a focus of magnetic power, capable of driving machinery. It is this virtue in the electro magnet, on which the invention of Prof. Morse is based. When the electro magnet is influenced by the galvanic current, it exerts considerable mechanical power, which immediately ceases when the current is broken. It is employing this power and breaking the current, to transmit messages from place to place by extended lines of wire that constitutes the whole invention. The closing and the breaking of the circuit in rapid succession gives the pen lever, a rapid vibratory motion, and a pen lever connected with, but separated at any distance from the battery, obeys this law and exhibits the vibratory motion in the same manner as if it were only separated a few feet. Mr. Alfred Vail expressly says that this is the principle upon which Morse's Electro Telegraph is based, and no one "knows better than he." This invention then some will say "is based upon the principle of Oersted's discovery, viz. the deflection of the needle by an electric current. In 1819 Prof. Schweiger of Halle, invented the wire coil or the Electro Magnetic multiplier, which caused the current to exert a greatly increased force upon the needle, and the *electro magnet* is just a superior substitute, a very superior one, for the *wire coil*." But here let us state the difference between the deflection of the needle by electricity, and the use of the electro magnet for telegraphic purposes. Prof. Morse uses the attractive power of the electro magnet, the deflection of the needle is a different affair.

But who discovered the Electro Magnet? There are many claimants for this honor, but we believe that the real discoverer has been overlooked, whether intentionally or not we will not say. In the Transactions of the Society of Arts for 1825, there is the first description of apparatus to which the name could justly be applied and this is by a Mr. William Sturgeon, of London. Ampere and Davy, had previously, it is true, magnetized steel needles as we described in our last, but there is no evidence that they had any knowledge of the suddenness with which the polarity of soft iron might be reversed by a change in the direction of the current. Prof. Jacobi, of St. Petersburgh, the eminent discoverer of Electrotyping, awards to Mr. Sturgeon in conjunction with Prof. Oersted of Denmark, the discovery of the electro magnet as a focus of magnetic power to propel machinery. To this gentleman also belongs the credit of constructing the first rotary electro magnet engine.

In 1832, Dr. Sculthess, in a lecture before the Philosophical Society of Zurich, gave it as his opinion that a power for mechanical purposes could be obtained by breaking and restoring the current. In 1833 he exhibited a machine which accomplished this, and Jacobi in 1834, laid before the Academy of Sciences of Paris, a plan of an electro magnetic engine. In 1836 Mr. Davenport, a blacksmith, of Philadelphia, turned lathes by electro magnetism. Thus as a motive power electro magnetism had been employed for more purposes than one previous to its first employment for telegraphing in 1837 publicly by Prof. Morse.

The moving of machinery by the electro magnet, is no doubt a different thing from telegraphing—the results are entirely unlike, but we make these statements as historical evidence of the electro magnet being used as a motive power for other purposes than telegraphing years before the first electro magnetic telegraph was constructed. Electricity had been employed for telegraphing by an extended line of wire in 1816, by Ronalds, of Hammersmith, England, who published a pamphlet in 1823 describing his apparatus—therefore the application of the *electro magnet* to attract a pen, that by a vibratory motion make marks on a running slip of paper near or at a distance from the battery, constitutes the whole of Professor Morse's invention—This is all that Professor Morse claims himself, and is a different system of telegraphing from the deflection of the needle, although both are based upon *electro magnetism*.

Planing Machines.

We hereby resume the publishing of Planing Machine Patents, and we would call particular attention to this one of Bentham's, granted in 1793, as it is one which covers much of the *debateable land*, of Woodworth's patent, and is therefore of much importance.

Specification of the Patent granted to Samuel Bentham, of Queen Square Place, Westminster, in the County of Middlesex, Esquire; for his Invention of various new and improved Methods and Means of working Wood, Metal and other materials. Dated April 23, 1793.

To all to whom these presents shall come, Now know ye, that in compliance with the said proviso, I the said Samuel Bentham do hereby declare, that my said invention is described in manner following; that is to say:

A saw mill of this sort consists of a saw-frame moving up and down, in which one or more saws are fixed, and a horizontal bed, on which a piece of timber is held, while the bed is moved on towards the saw; the saw-frame is confined to its course by fixed channels. By the up-and-down motion of the saw-frame, a progressive motion is given to the bed on which the piece lies, whereby at every descent of the saw, the piece is cut to a certain depth and at every ascent the piece is advanced; this advancement is made by a rack and pinion, set in motion by a ratchet wheel, of which a tooth is laid hold of by a claw, every time the saw goes up. Thus far, generally speaking, I adopt the same contrivance in my sawing machine. p. 228.

Working by a rotative motion of the tool.—In the instance of circular saws, not to mention boring and grinding tools, working by a rotative motion has already been used, as I understand in a few instances, such as cutting timber into boards, cross cutting logs for firewood, cutting mortises for ships' blocks, cutting the teeth of cog-wheels, and other slight indentures in metal. But the idea of adapting the rotative motion of a tool, with more or less advantage, to giving all sorts of substances any shape that can be required, is my own, and, as I believe, entirely new: I place it, accordingly, among the inventions of which I claim the exclusive property, in as far as it has not yet been reduced to practice by others and in as far as the contrivances here described afford sufficient instruction for producing the effect: To take the simplest mode of fitting up a circular saw, for cutting in this way, conceive a spindle furnished with a circular saw, turning between two centres, as if in an ordinary turning lathe with a rigger or pulley to receive a band. Let the saw be strengthened, and confined to its position, by two flanches one on each side of it of equal diameter one to the other: as this diameter limits the depth of the cut which can be given by the saw, it should therefore be no greater than what is necessary to give the saw the necessary degree of stiffness. Immediately over the spindle fix a bench, of a size adapted to the work you have to perform and crossing the spindle at right angles. In this bench make a slit, for the saw to play in, projecting above it, more or less according to the depth of the piece which it has to cut. Standing now in the direction of the saw, put it in motion in such manner as to make the upper part move towards you, as it turns, shoving the piece on against the saw, it will be cut through. Where a rigger, if small enough not to come in the way of the piece, would be too small to give motion to the saw, its office may be performed by a cog wheel of somewhat less diameter than the flanches; to which cog-wheel you may give motion by another cog-wheel, fixed to a rigger of a larger size, turning upon a separate spindle.

How, by means of a rotative saw to shape a piece from the rough: a piece of wood for example for the state of a log, or a small branch of a tree; or a piece of metal as it comes from the crucible or the forge. 1. The first thing to be done is to give it a straight side: for this purpose, the business is, to advance the piece in a direction exactly straight against the saw. For securing this straightness more methods may be employed than one; the following I found as commodious as any. Cut in the bench a longitudinal channel, in a direction parallel to the saw, and the nearer to it the better. Into the channel or grove insert a bar or tongue, so as to fit exactly, and yet slide with ease, but without projecting above the bench. On this longitudinal bar fix two transverse bars, projecting their whole thickness above the bench; one of them fixed, and the other moveable, so as to be fixed at different distances from the former, the distance being adjustable to the length of the piece which is held between them.

(*To be continued.*)

Treatment of Cholera.

Dr. Maxwell, of Calcutta, who has lately published a "Key to the Cholera" (he himself having had three attacks of the disease,) thus alludes to his recovery from the attacks. My thirst became worse and worse, and I determined to relieve it at all hazards, and not add misery to death. Having made up my mind, the next point was the choice of the particular beverage; there was plain water, whey and barley-water, gruel, congree, &c., wine and water, brandy and water, &c. To the last of these I had a repugnance, as every one has in fully-formed cholera and the others would require time and direction for their preparation which my disease was not able to afford, or I give. Whilst thus ruminating, my eye accidentally fell upon a packet of effervesing soda powders standing among a crowd of other remedies and nostrums on the table. It immediately took my fancy: it struck me as the very thing I wanted, and without further delay I pointed to it, and made signs for a copious draught thereof. It was soon made and soon swallowed; it was extremely refreshing and agreeable, and the thirst was allayed; no nausea succeeded, and the pleasing anticipation remained of having a repetition of the draught whenever I desired. This I was not long in desiring: in fact, almost immediately after I swallowed another, and continued repeating it whenever the thirst became urgent. Instead of retrograding or remaining stationary, I began to improve; the stool became easier, and the spasms less vigorous and vicious.

"I experienced an inclination to sleep, a desire to be covered up, and for something hot to drink (these are the best signs, pointing to the disease escaping from the collapse stage.) I had a large tumbler full of very warm but weak brandy and water made, and drank it off. I fell asleep and had five or six hours of sound repose. I awoke bathed in perspiration, and with the exception of a little stiffness and considerable thirst, I felt perfectly well. The thirst was again relieved by the effervescing draughts, and I followed up the principle with a couple of dishes of that most delectable and pre-eminent of all stomachics, tea."

Spent Tan-Bark may be employed as a Manure.

This substance can easily be dried and converted into charcoal in a similar manner as recommended for charring peat. It may then be mixed with night soil, answering both the purpose of drying and rendering it fit for carriage, at the same time absorbing all the ammonia, &c. It may also be mixed with urine or with animal manure of any kind for similar purposes. Tan-bark, in an uncharred state is of no immediate value as a manure in consequence of the gallic and other acids it contains.

The above extract from an unknown exchange, is something interesting to our farmers, and it is correct too. Unburned tan bark we know to be injurious to vegetation, but when the acid is driven off by heat, its nature is quite different.

Iceland.

Iceland is little less than a mass of lava; and so intense is the energy of volcanic action in that region, that some eruptions of Hecla have lasted six years without ceasing. Earthquakes have often shaken the whole island, carrying a complete revolution in its geographical physiognomy: such as the rending of mountains—the elevation of some and sinking down of others, the desertion by rivers of their channels and the appearance of new lakes.

Piano Forte Tuners.

This useful class of persons often fall under unjust censures passed upon them by those who, though they play upon the piano, are entirely ignorant of many of its peculiarities. The piano forte is susceptible of the changes of temperature, and when tuned in one temperature will be out of tune in another. Good and well made piano fortes will stand in tune if they are tuned at proper periods. Many people, as they think to avoid expense, will let their instruments remain long out of tune, which is a great detriment to them, as they are less likely to stand well after having been so left.

A piano forte ought justly to be tuned twice a year, at least. First, when you commence with a fire in the room; and second, when a fire is discontinued. By following this course you have the best guaranty that the instrument will remain in tune for the longest period of time.

Again, the instrument should not be suffered to remain below concert pitch; if it is for years tuned below, it will never stand up to the pitch without a great deal of labor, if indeed it ever stand at all.

Many a beautiful instrument is nearly ruined for want of attention to these simple facts.—Yet it will not answer for a professional tuner to recommend these things; if he does, the people will suspect him immediately of selfish motives, and say that he is planning for his own advantege. Owners of piano fortes who are not acquainted with the nature of the instrument, ought to bear these facts in mind when by a yearly outlay of a trifling sum they may save to themselves infinitely more than they expend, by the preservation of their instruments in which they have invested so much.

An Enormous Gas Meter.

A London gas meter of immense size has just been cast and completed at the ironworks of Messrs. Glover in Charles St. Drury Lane, London, which is about to be erected in Co vent Garden Theatre for the measurement of gas supplied that establishment by the Chartered Gas Company. It is what is called a dry gas meter,—no water being employed in the process, as in the common meters: and is the invention of a Mr. Defries. It contains two chambers: the upper one holds the machinery,—the lower is divided into six compartments by three moveable diagrams and three fixed partitions. The gas enters at the inlet pipe, whence it passes to the bottom of the meter, and fills each compartment in succession. A continuous supply is kept up by the action on the moveable diaphragms, which act upon the indicating machinery by means of a very simple and ingenious contrivance, that registers the consumption of gas with unerring accuracy on a plate of six dials and indexes from units to millions. The meter is capable of measuring 6000 cubic feet per hour,—and is to measure the supply of 1500 burners. It weighs two tons; is 16 feet in circumference, and 8 in height. The shape is a sexigon, with Gothic devices and ornaments.

Farmers' Wives in Olden Times.

The duties of farmers' wives, in England, in olden times, were somewhat different, than is at present the case in this country.—In the reign of Henry VIII. Sir A. Fitzherbert wrote a treatise, entitled "A Prologue for the Wyve's Occupation," in which he says:—

"It is a wyve's occupation to winnow all maner of cornes, to make malte, washe and wrynge, to make heye, shere corne, and in time of nede, to help her husbande to fill the mucke wayne, or dounge carte, dryve the ploughe, to lode heye, corne and such other, and to go and ryde to the market to sell butter, chese, mylke, egges, chekyns, capons, hennes, pygges, gese, and all maner of cornes.'

How to make the Hair Wavy.

A fashionable newspaper in London thus tells the young ladies how to make their hair wavy. It is too important an affair to be limited to any one country! 'Damp the hair with water, and plait it three or four plaits every night. It will then take the waved form, though combed and brushed next morning.' This is owing to the steaming process it undergoes under the night cap.

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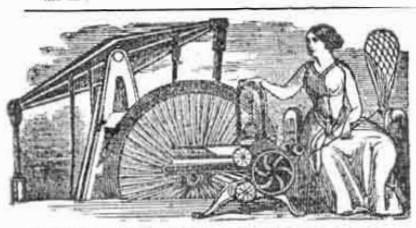


New Inventions.

New Wheel Pump.

A new and very large wheel is now constructing at Pittsburg Pa., to be worked by a steam engine, for the purpose of draining lands. It is twenty four feet in diameter and so constructed as to sweep an immense body of water from a plantation.

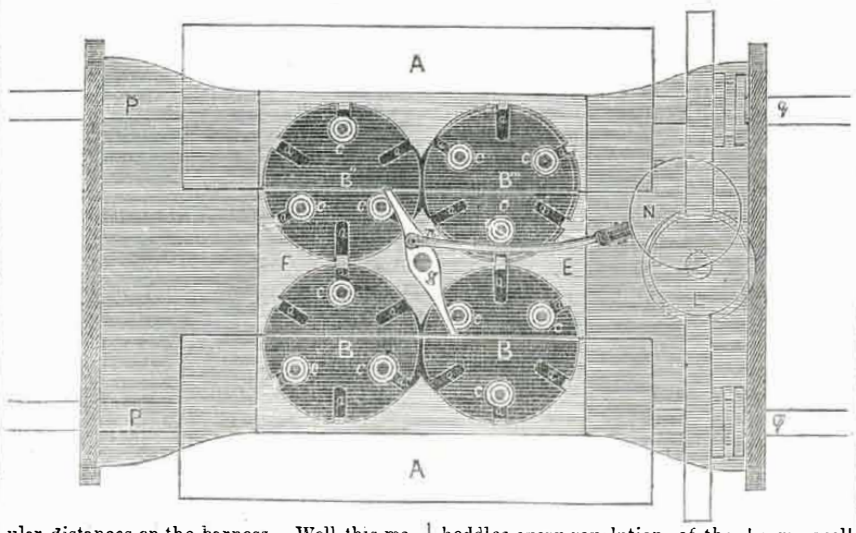
Machine for making Weaver's Heddles.

(*Continued from first page.*)

A is the heddle beam. B B B B, are revolving spool frames or tables. C represents the spool spindles. *a* are slots in the spool tables. Each table has six slots or spindle recesses, but only three are occupied at once with the spindles. As the tables revolve, three slots are occupied with spindles and three are empty alternately, and an occupied slot in one, is brought opposite to an empty recess in its fellow table as seen in fig 3. The tables B B, constitute one pair and the tables B2, B3, another forming two distinct harness, one on each side on two beams but driven by the same gearing. The yarn is put on the spindles C, and passes through a hole in the top of the flyers D, or over a depression (fig. 2) to hold it in its place and then passes under *c*, a recurved wire, that has a perforated weight *d d*, at each end. The flyers pass through these holes and the legs serve as guides to the weights. This is to take up the slack of the yarn. The spindles have each a groove in their lower parts adapted to slide into the recesses of the tables when the recesses coincide. The platform E E, has circular cavities for the lower ends of the spindles. F F, (fig. 2,) are fast and loose pulleys to drive the shaft G. A bevel wheel H, on G, gives motion to the revolving spool tables by toothed wheels, as seen at fig. 5. The bevil wheel I, (fig. 2,) gives motion to the heddle beams by gearing into J, on the shaft K. This shaft carries a worm wheel which gears into M to drive A. N is an eccentric on K, to vibrate *g*, a shipper, which shifts the spindles from one table to another—the opposite ends of *g*, operate on two pair of tables. A connecting rod with N, vibrates the shippers. N, is connected with K and turns with it by clutch pins and when these are not engaged the shafts turn without N. *i i*, fig. 4 is a pin that passes through N, projecting out above and below, nearly in contact with K. There are two clutch pins on K, either of which may be brought in contact with *i*, as the eccentric wheel is made to slide up and down on the shaft. O, fig. 2 and fig. 4 is a forked lever with its fulcrum at *e*. Its fork ends *m m*, embrace N, the eccentric and raise and lower it at proper times. *n n* is a spiral spring attached to the forked lever, serving to draw it inwards, to depress the eccentric and make it clutch with the lever clutch pin. On the wheel M, are cams or lifting pieces *p p*, which when they come in contact with the end of O, force it out and raise N, the eccentric, so as to engage with the upper clutch pin at the required time, as will be understood by fig. 4. The axis of A is P, a screw, fig. 2, tapped into the frame of the machine and moves A endwise as it revolves, to wind the heddles as they are made spirally on the beams. *q*, is the smooth axis of A, on which the beam slides moved by the screw on the guide rods *r r*. Q Q, are rods that may be inserted in grooves in A. The semi-diameter of A, must be of the length of the heddles. After the number of heddles for a harness have been made, grooved pieces may be slipped over Q, and glued upon them to embrace the twisted strands, or any other mode may be adopted. The shipper connecting rod *h*, (which looks like an *n*,) figs. 2 and 3, has a hinge joint *t*, to allow it to be lifted from the shipper *g*. The small bevil wheel J, on the shaft K, is one third of the diameter of the driving wheels, when there are three spindles on the table, and therefore makes the changes of the spindles in the recesses in one revolution of the revolving spool tables. If there were four spindles in the table, the wheel J, would be one fourth the diameter of the driving wheel, &c.

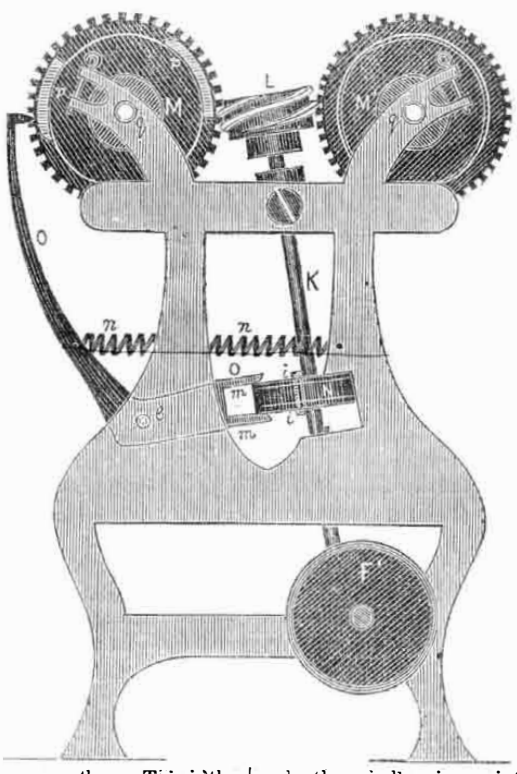
We have now explained the different mechanical parts and offices of this machine as referred to in these drawings. We will now explain its operation so that all may understand it, but we will state first, that fig. 1 exhibits a different arrangement of mechanical parts from the section views, but they are just the mechanical equivalents to accomplish the same thing. Heddle or harness making is the formation of *eyes* by two *cords* being knotted together. These eyes must be formed at regular distances on the harness. Well this machine forms two cords by B B, revolving and twisting the yarn on the three spindles, one by each table revolving, the cord winding at the same time as it is twisted on the beam A. Now suppose we wish to form 4 eyes on the

FIGURE 3.



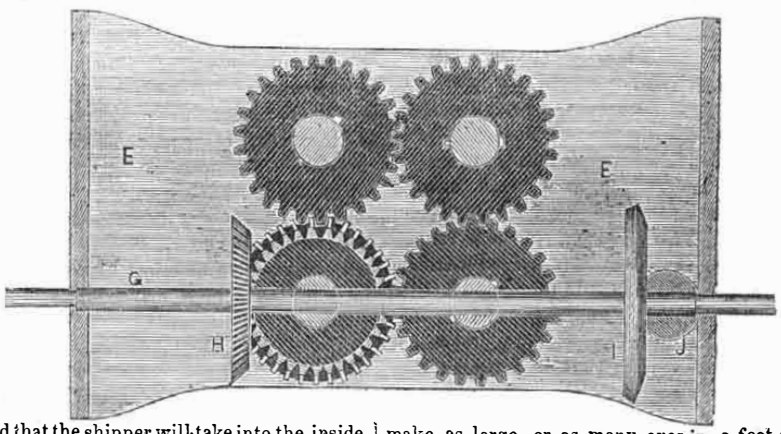
heddles every revolution of the beam; well look at fig. 3. We know that if the strands that make the two cords, were interlocked at certain periods, 8 times during the revolution of A, that 4 eyes would be formed by the strands of the two cords being thus at certain

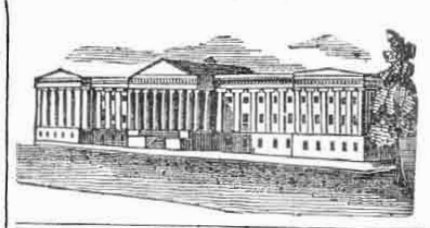
FIGURE 4.



points braided into one another. This is the way this machine does its work, and this can be done by the forked lever in fig. 4, shifting the shipper, or by cams on the inside of the upper gear wheel of fig. 1. At any rate, it is just the operation of a reversing self acting clutch, so well known to any mechanic. To make the spindles in *c*, interlock, to braid the eyes. The cams or clutch operate the shipper *g*, so that instead of vibrating from side to side as now seen in fig. 3, touching the spindles outside, it is (the shipper) stopped by the resting of the eccentric one sixth of the revolution of the table, and then it will be easily perceived that the shipper will take into the inside of the spindle *e*, and throw it into the empty recess *a*, of the other table, which coincides thus interlocking the threads and braiding the two cords together into one, forming an eye of the heddle by braiding instead of knotting. It will be observed too, that the clutch can be changed by cams, to operate the shipper, to make as large, or as many eyes in a foot as may be desired, but the changing or passing of the spindles from one table to another, must be performed by the shipper twice for one eye, according to the length of the eye, and then they are not shifted again until A has revolved the distance wanted to form the base of a new eye for the harness.

FIGURE 5.





LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Oct. 17, 1848.

To Thomas Lyle, of Collinsville, Pa., for improvement in machinery for doubling and twisting Yarn. Patented Oct. 17, 1848.

To Stephen Parks, jr. of Brooklyn, N. Y. for improvement in Archimedean Lead Pipe Machine. Patented Oct. 17, 1848.

To Charles J. Richards, of New York City, for improved Cylindrical Wrought Nail Machine. Patented Oct. 17, 1848.

To John P. Taylor, of Little Compton, R. I., for Floating Battery. Patented Oct. 17, 1848.

To W. W. Metcalfe, of York Springs, Pa., for improvement in Ploughs. Patented Oct. 17, 1848.

To David Dick, of Meadville, Pa., for improvement in Presses. Patented Oct. 17, 1848.

To John A. Swope, of Germany, Pa., for improved Flood Fence. Patented Oct. 17, 1848.

To A. B. Earle, of Colesville, N. Y. for improvement in Planting Ploughs. Patented Oct. 17, 1848.

To George Beeching, of Augusta, N. Y. for improvement in Cultivators. Patented Oct. 17, 1848.

To John J. Carrel, of Petersburg, Va., for improvement in Harness Saddle Mounting.—Patented Oct. 17, 1848.

To George F. Southwick, of Somerset, Mass., for improvement for Locking Umbrellas and Parasols. Patented Oct. 17, 1848.

To John Russell, of New York City, for improved Domestic Telegraph. Patented Oct. 17, 1848.

To M P Coons, of Lansingburg, N. Y. for Iron Hurdle Fence. Patented Oct. 17, 1848.

To Thomas Peck, of Syracuse, N. Y. for improved Door Spring. Patented Oct. 17, 1848.

To Charles H. Dubbs, of Natchez, Miss. for improvement in Dentist's Instruments. Patented Oct. 17, 1848.

To Kirby Spencer, of Athens, Geo., for improvement in Dentist's Instruments. Patented Oct. 17, 1848.

To Caroline C. Nichols, of Providence, R. I., for improvement in manufacture of Artificial Flowers. Patented Oct. 17, 1848.

To George H. Marsden, of Charlestown, Mass., for improved Engine for Cutting Files. Patented Oct. 17, 1848.

To Samuel Rodman. of New Bedford Mass for improvement in Scoups. Patented Oct. 17, 1848.

INVENTOR'S CLAIMS.

Improved Turn Tables.

George Dryden, Worcester, Mass., for improved turn table. Pattented August. 29th, 1848. What he claims is the combination of circular bearing rails, the wheels cogged, pinion or geer applied to the cogged wheel either applied to the platform or between the rails as arranged and applied to the turning table and made to operate together.

Pen Holders.

A. S. Lyman and M. W. Baldwin, Phila., Pa., for improvement in fountain pen holders and nibs. Patented Sept. 19, 1848. Claims, first the method of supplying ink to pens from a resorvoir in the handle by means of a bag or chamber, the whole or part of which is made of gum elastic or other yielding substance, substantially as herein described, whereby the writer can by the pressure of the finger or thumb supply the nib with ink while writing and thus avoid the necessity of dipping the pen. Also the method substantially as described of preventing the escape of ink from the fountain, by combining the spring plug attached to the cap as described.

An English æronaut, Mrs. George Batty, now ascends from the Cremorne Gardens in company with a real lion!

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NEW YORK, OCTOBER 28, 1848.

Honor to whom Honor is Due.

It is a lamentable fact that many men who are esteemed for honor, honesty, probity and worth in private life, seem to have no qualms of conscience in appropriating to themselves the scientific discoveries or inventions of others. This is particularly true in reference to the handiwork and productions of our mechanics and artisans. It pained us not a little to behold at this year's Fair of the American Institute (as it has before,) the studied trumpeting of Agent's *ware*, without a single reference to the actual producer. In the displays of mechanical and artistical skill that are yearly exhibited in Paris, the articles entered must have the name of the mechanic or mechanics and artisans who labored on the same, labelled or engraved on them, so that the public may not bow to a proxy genius. We wish this custom to be universally adopted in our own country, because it is so democratic and republican in nature and justness. We might here point distinctly to articles exhibited at the Fair, and say to the Managers and respectable gentlemen, as the prophet said to David, " thou art the man."

There is no class so guilty of the evil that we speak of, as our manufacturers. Now, it would be even something to their interest to send with their goods the name of the girl that wove such a piece of cloth—and the person who had charge of the same. This would be no more than an act of justice, and would (we are perfectly confident,) be not unprofitable to the manufacturer.

Our Fairs are for the ostensible object of encouraging American genius, skill and industry. It is surely a poor plan of carrying out these objects, by exhibiting, in too many cases, splendid tokens of artistic skill to dazzle the eyes of onlookers, for the mere purpose of letting people know where these things are sold, not made. An humble mechanic or artisan, has frequently to chew the cud of chagrin in seeing some agent receive a medal or diploma for a piece of workmanship which, the person who received the reward, could no more perform than the man in the moon.

We hope that these few hints will not fall like good seed among thorns and briars, but upon good soil and bring forth good fruit.

It is a great source of honest pride, to behold the handiwork of our mechanics and artists made the theme of just praise, but we take more pleasure in witnessing the admiration transferred from the work of art, to the artist ; but oftentimes we are deprived of this pleasure, because honor is not awarded to whom it is due.

Evening Free Schools.

Evening Free Schools are now opened in various parts of our city for the instruction of our young men and women. We hope that they will take advantage of this blessing, for a blessing it really is, and that they will appreciate the benefits of a good education. There are many very eminent men who have received all their education after the toils of the day were over. There is certainly a great pleasure arising from having mastered some difficult problem before retiring to sleep, in comparison with beholding the performance of Forest or a Macready. Our young Mechanics should not neglect availing themselves of the additional privileges provided by the Education Board of this city.

Honor to Mechanical Ingenuity.

In Paris there is a Central Jury appointed by government to examine articles of mechanical ingenuity, decide upon their merits and grant proper rewards, and the Legion of Honor is often granted. We have often thought that an *Order of Merit* should be established among our Mechanics and Farmers. L. L. D., D. D. &c., with the Hon. this and that, belong to every body but our working people.

Prevention of Explosions in Steam Engines.

Mr. John Wilder of this city, in a letter to the Tribune, says that it is impossible for the force of elastic steam to produce the breaking of engines and rending of boilers that so frequently occur : they are the work of the explosive principle, when disengaged from its combination with steam. Similar in its effect to lightning and identical with electricity in its distinctive properties ; its velocities are in effect unlimited ; it is devoid of weight, and not subject to the laws of gravitation, which are inherent in all matter that has weight, and it is hence evident that it may be conveyed away by similar conductors.

It is absolutely certain that the explosive principle is disengaged from steam as it is let into the cavity of the nozzle, or valve-chamber, on the opening of the steam-valve : the pressure that kept them combined is then in great part taken off, until the cavity is filled with steam. There is no proper escape of the explosive element from the nozzle, which is heated, and in effect insulated, and the accumulation is highly dangerous ; but it may be safely carried off by proper conductors, those most convenient are small copper tubes.

One end of a tube at proper length is to be terminated in the best manner for the diffusion of the electric fluid—the other end to enter the cavity of the nozzle, and have over its orifice a slight valve, kept by a spring a little open, to allow the explosive element to pass off by the tubular conductor, the valve to close by the force of steam as the cavity becomes filled therewith. The conductors of a condensing engine should be carried high enough above the water in which they terminate to preserve the vacuum.

The security from explosions and breaking of engines must be complete, the cost and trouble only nominal.

Words of Wondrous Length and Thundering Sound.

The Philadelphia Ledger opens its batteries upon the name of the New York *Pomological* Society, and enquires " what *ology* is this ?" The only answer we can give is, nonsensology. Our scientific system makers, are sadly debasing our mother tongue, by adding to it strange and uncouth foreign terms,—which have neither sweetness of sound nor sense of application to compare with our simple and energetic Anglo Saxon. " The Association of Fruit Growers" would not only be a name more easily understood, but more beautiful than " Pomological Society." The English language by the combination of words is capable of indefinite expansion, and in spite of many lamentations made by dull professors about the barrenness of our language, we find no literature that thrills deeper on the heart than some of the old ballads in which are not to be found a word exceeding three syllables in length. Shakspeare and Burns, show what can be done with their native tongue and those who complain of it are like miserable mechanics who complain of their tools, to hide their incapacity to use them.

Mammoth Pump.

The St. Louis Republican of the 5th instant says that " Capt. P. Bennett will, to-day at 3 o'clock, P. M., put in operation, on board the steamer Cumberland Valley, foot of Florida street, Walsh's mills, his new invented patent pump, constructed on scientific principles, without valve or piston, calculated for freeing sunken boats from water—throwing the unheard of quantity of one thousand barrels per minute."

IMPROVED SLEIGH.

Fig. 1.

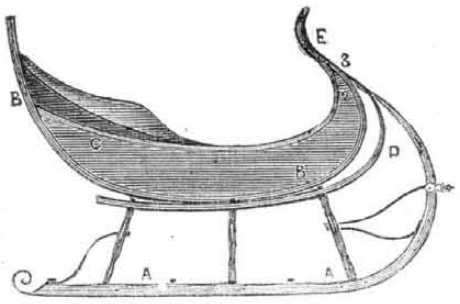


Fig. 2.

These sleighs are the invention of Mr. Moses Miller of Fort Ann, Washington Co. N. Y. and secured to him by letters patent. The improvement consists in the manner of constructing sleighs ; by means of which improvement the dash board may be made of any desired width, so as to form wings on each side thereof, out of the same piece which constitutes the dash board itself, thereby affording more effectual protection from annoyance, by the throwing of snow ; whilst also the structure of the forepart of the vehicle is rendered more permanent than heretofore, and will more rapidly admit of repair.

In the accompanying drawing, fig. 1, is a side elevation, and fig. 2, a view of the front of the sleigh. A A, are the runners, B B and C C the timbers that are called the raves ; B B being the lower, and C C the upper raves, which with the necessary cross pieces constitute the main frame of the sleigh body. D D are fenders which are curved round so as to bring their outer ends opposite to the main raves B B, as shown at 3 in fig. 2, to which raves they are fastened by a screw bolt, or some analogous means. The main raves B B, are turned up in the form seen in the front at B fig. 2, but this curve may of course be varied at pleasure. The fore part of the raves are connected firmly together by means of a cross piece, the place of which is shown by the dotted lines at F F, fig. 2.

In the constructing of sleighs as heretofore made, the dash board constituting the fore part of the body of the vehicle, has been placed on the inside of the raves, and it has therefore been limited in its width to that of the frame work of the sleigh, which width is designated by the dotted lines B B, fig. 2, this being the place of the raves. Under this arrangement, the dash board is planted on the raves at their outer sides, and it may, therefore, be extended out in width so as to form wings, in one solid piece with the said board. The board so attached is shown at E E,—where the part of E E constitutes wings, which may be extended out to any desired width without any additional cost, and in a manner much more permanent and convenient than such parts could be made of, added to sleighs on the old plan.

The runners, A A, are curved upwards, and backwards, so as to bring their fore ends in contact with the dash board at a point immediately opposite to the cross piece F, to which they are confined by the use of suitable screw bolts. The dash board is affixed to the raves by means of wood screws, and the whole arrangement of the front, therefore, is such that runners, fenders and dash boards may readily be removed for the purpose of repair.

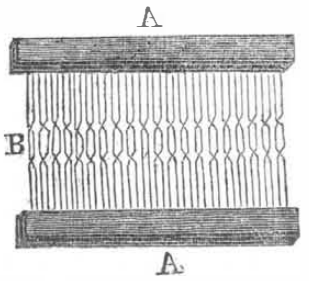
The dash board being made all in one piece is a very important improvement over the old way, and they can be made much cheaper and certainly more easily repaired. The main raves are formed in a proper press, and the pannels of the sides of the sleigh are secured by grooves and tennon to the raves, and a series of small bolts or bands passing through the raves inside joining the pannel and raves, dispensing with the more expensive stays, and making a far stronger sleigh at the same time. These improvements will no doubt be universally adopted by our sleigh makers. Two of these sleighs may be seen at Mr. Brewster's Carriage Repository, No. 396 Broadway, this city, and we have examined them personally, and are convinced that they embrace new and valuable improvements, being neater, lighter and stronger than those made in the old way.

Vogel and Thomas's Harness.

Fig. 1.

Fig. 1, exhibits the eye of the heddle and shews that it is braided forming not two but one cord at the base and top of the eye, and certainly superior to the old heddle. One advantage of it, is that the varnish will saturate the cord more thoroughly than if the eye was made of knots, making them far more durable as has been proven with a harness that has been severely tested for more than one year. Another advantage is, that it forms a far smoother eye as will be observed in

Fig 2.



A A are the two slips that confine the heddles and B are the heddles. Now it will easily be perceived that for fine work a vast improvement is embraced in the form and make of a harness made of these heddles, while for all other kinds of weaving, the advantages are indisputable. Both the machine and the work it produces have peculiar claims upon the manufacturing interests of our country, and both are patented. The proprietors have wisely concluded to sell rights of States, in such a manner, that the person or persons who secure single rights, will have a respectable field for operations and be well remunerated in their enterprise. The Institute awarded a gold medal for this invention and it certainly was not too high a prize.

Emigration and Trade Societies.

The Sun says that one of its correspondents —a hard-working mechanic—endowed by nature rather than by study with strong perceptive faculties and good reasoning powers, wishes to impress upon the different trades societies of the city, the importance of action being taken by those who are able, for the assistance of those who are not, during the severe winter months in prospect and for all future time. No means are better calculated to effect this desirable object than a good emigration system, such as he suggests. Let our labourers and mechanics form Emigration Societies and thus assist those of their numbers who are disposed but unable to seek employment in the vast fields and new cities of the boundless West. Thus they would do a double good. In relieving those, they relieve themselves of their competition and advance so much nearer to constant employment and good prices.

California Gold.

Edward N. Kent, chemist, of this city, in a letter to the Sun says that he has analysed some of the California gold ore and finds it composed of arsenite of copper, containing a little Nickle and Zinc, and mixed with Iron Pyrites, some of which is in well defined crystals, and without a single particle of gold.

This is cooling news to the bullionists, but they must just smelt their disappointment instead of their gold—in the crucible of resignation, and after this stick the old proverb on the tips of their noses " It is not all gold that glitters."

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Incrustations in Steam Boilers.

Mr. Editor.—In No. 3 vol. 4, Scientific American, is an article by R. Bartholomew in answer to mine in No. 2, wherein I had stated that the labor of a previous article of his seemed to be directed against Mahogany Dust, &c. This he says is not true. He also says he had no knowledge of its being secured by patent until he saw my "ill tempered letter." A reference to his article No. 50 vol. 3, will show this language: "For all the many professed ways which have been discovered to prevent incrustations" "we believe from the practical evidence of more than one that Mahogany Dust," "which was once to be the panacea for all incrustations," "has utterly failed to confer a single benefit." Again—"Indian meal is the best thing so far as we are yet acquainted to remove it" (incrustations.) "It is at least equal to more expensive substances and altogether superior to exhausted dye stuffs, for which a patent was secured three years ago." This was under date of Sept. 2d, and Oct. 7th, he says his reference to mahogany dust "almost" (not quite) "carelessly" done—and I suppose his denial of any knowledge of the patent was also "almost carelessly" made. Thus much for Mr. Bartholomew's consistency and veracity, for which the reader will doubtless give him due credit.

In my article in No. 2, I stated in plain English—that of Mr. Bartholomew I knew nothing. "But that on reading his article with its italics and cants at Mahogany Dust as a patent," the idea was presented to the mind, that he imagined himself to be witty in his attempts at ridicule—and also that he belonged to that class of men, who are incapable of appreciating an honest effort at improvement. With an emotion truly fanciful, Mr. Bartholomew has discovered that I, by this language impute to him the wonderful fancy of imagining himself to belong to that class. No, No, Sir, I have subscribed my name to no such nonsense, for I am fully impressed with the idea that in order to entertain any such just notions of himself—

"The Lord must first the power gie' him,
To see himsel as ithers see him."

Mr. B says, "I honestly confess that I can not appreciate the honest effort to secure a monopoly of all the mahogany saw dust that may be used in steam boilers in these United States for 14 years." Here again is evidence of a wonderful fancy, powerful logic, and scientific reasoning. What an odious monopoly it must be to secure all the mahogany dust which may be used for 14 years, when its use "has utterly failed to confer a single benefit." Indeed—well may the man who can thus reason lament that he "feels not the joy which the warrior feels to meet the foeman worthy of his steel."

Mr. Bartholomew says, "high pressure engines seldom need any remedy for incrustations." Now, Mr. Editor, many of the disastrous explosions on our western waters, where high pressure engines alone are used have from investigations of causes, been attributed to large deposites and incrustations upon the flues and bottoms of the boilers, to such an extent as entirely to exclude the water from the surface of the iron, which being exposed to the action of the fire becomes heated until the expansion causes a rupture, or break, in the incrustation or scale, when water comes suddenly in contact with the heated iron, causing the collapse of a flue, or an explosion, besides the use of high pressure engines at sea, have universally been condemned. on account of difficulties and dangers of incrustations, under high steam in salt water—but these being facts, have not probably come within the range of Mr. B.'s scientific investigations.

Mr. Bartholomew says I have advanced but one scientific idea, and that is, that mahogany dust tends to prevent deposites of carbonates and salts, keeping them in suspension, rendering it less frequently necessary to blow water from the boiler, with, than without, the dust—and this idea seems to trouble him—he says it is a new fact for chemists. Now, although it is undoubtedly a new fact to him, yet chemists will have no difficulty in appreciating the fact, that carbonates, salts, or earths, being kept in suspension until the water is fully impregnated with them, would require much less frequent discharge to carry off a given quantity of those substances, than would be necessary were the carbonates, salts or earths to settle or harden into incrustations, leaving the water blown but slightly impregnated with them.

Daniel Barnum.

New York, Oct. 1848.

[This controversy has not been the least instructive to us, and we presume, of as little benefit to our readers. We opened our columns, for reply, as we are perfectly impartial in these matters. We now close them peremptorily except for explanation.

Of the Comparative Duty of Long and Short Stroke Engines.

The following experiments by J. G. Bodmer, an English engineer, will be found to be not a little interesting to our engineers.—From Mr. Bodmer's experiments he has proven (perhaps a mistake) that different from common opinion, the short stroke consumes 20 per cent. less steam than the long stroke, but the opinions expressed are founded on the compensating principle over the single crank system; and it is Mr. Bodmer's opinion that this advantage consists in the steam acting simultaneously upon two pieces connected with the same crank in opposite directions. The question seems to reduce itself to this—whether an effort which produces no useful effect, is not so much power lost; and whether therefore, if reaction can be converted into effective action, so much power must not necessarily be gained? For argument's sake, we may assume a 12-pounder cannon to be placed at the height of say 50 feet from a perfect level, and a ball to be fired off with a charge of 4 lbs. of powder. If the length of the cannon be eighteen times its bore, the ball will touch the ground at a distance of say 1800 yards; and suppose the cannon, whose weight shall be 200 times that of the ball, to be suspended in the air, it will, by the shot, be made to recoil the two-hundredth part of 1800 yards, or 9 yards—the force which projected the ball to a distance of 1800 yards being evidently equal to that which sent the cannon a distance of 9 yards. Now if the breech of this cannon were cut off, and a ball placed on either side of the charge of 4 lbs. of powder, on the shot being fired, would not the cannon remain stationary, and would not the joint effect of the two 12 pounder balls be far greater than the effect of the one ball, upon which the whole of the 4 lbs. of powder had been expended? And if so, wherein does the principle differ from that of the compensating engine? It was observed, that the lateral rocking of the train no doubt constituted a very perceptible element in the resistance to railway trains; probably the back and forward motion between the locomotive engine and the carriages attached to it may also be considered to have some share in the matter. These deteriorating movements may be traced to the peculiar action of the single crank engine. The lateral rocking motion is owing to the pressure of the pistons being exerted alternately to the right and to the left, upon a lever the length of which is represented by the distance from the centre line of the engine to that of each of the cylinders. But if, as in the compensating engine, the thrust in one direction is counterbalanced by a pull of equal force in the opposite direction, such rocking motion can by no means take place. And experience proves that it does not take place.

The longitudinal back and forward, or reciprocating motion, may be explained from the circumstance that the cranks are, at every revolution of the crank axles, placed in such positions that almost the full pressure upon both pistons is exerted alternately in opposite directions; the thrust one way having evidently a tendency to separate the locomotive engine from its tender, and that and the carriages from each other; whilst the pull in the opposite direction throws the locomotive engine back upon the tender and the carriages. In the compensating engine the thrust and pull are again equally balanced, and consequently this longitudinal reciprocating motion cannot take place.

It would be most interesting if it could be ascertained by experiments to what extent, with regard to its action, the compensating locomotive engine really differs from those of ordinary construction; and whether, by their use, the co-efficient of resistance to railway trains would be to any perceptible extent affected.

Results obtained from a comparative trial of a 60 horse-power long stroke and short stroke (compensating) non-condensing steam engine, with Prony's brake. Both engines were tried on the same day and with the same brake.

Data.	Long stroke.	Short stroke.
Diam. of cylinder,	28.5 in.	21.65 in.
Sec. area cylinder,	683.49 sq. in.	368.13 sq. in
Length of stroke,	7 feet.	3.018 ft.
Pres. of steam sq. in.	43 lbs.	45 lbs.
Back pressure,	2 3-8 lbs.	6 lbs.
Steam cut off at, of the stroke,	0.9	0.537
Veloc. of crank shaft, rev. per minute,	21.6	91.91
Effect obtained,	170.17 hr. p.	132.55 h. p.
Consump. of steam per h. p. per min.	8.01 cub. ft.	6.28

Wine in Australia.

There is now every reason to believe that Western Australia will one day become a great wine country. Its vineyards are becoming more numerous and extensive every year, and the wine produced in them is of a quality to lead us to believe that when the art of preparing it is better understood, it will be found of very superior quality. It will, however, be a new kind of wine, and therefore, before it will be prized in Europe, prejudices in favor of older wines have to be overcome.—Soil and climate combined give to different wines their peculiar flavor. The vines which in Madeira produce the wine of that name, when brought to another country, even in a corresponding latitude and planted in soil that chemically approaches as closely as possible to that which they have left, will produce a wine materially different from that called Madeira. So with the the vines of Xeres and Oporto, or Constantia. Different countries produce wines peculiar to themselves; and the wines of Western Australia will be found to be entirely *sui generis*.—All that I have tasted though made from the poorest of grapes the common sweet water, have one peculiarity. A good draught, instead of affecting the head or flushing the face causes a most delightful glow to pervade the stomach, laborers in harvest prefer the home-made colonial wine to any other beverage. Every farm settler is now adding a vineyard to his estate.—*Landen's Bushma.*

Importance of the Insignificant.

It is one of the marvellous arrangements of Providence, that results of the greatest magnitude and importance are not unusually caused by operations apparently so insignificant as to be reckoned scarcely worthy of notice. Nothing, however, is really insignificant—all has a meaning—all tends to one harmonious whole in the order of creation.

Some beautiful illustrations of this proposition are to be found in the animal kingdom, particularly in the immense and wonderful influence of minute animated organisms upon the actual form and mass of the globe! The chalk formation fills every reflective mind with wonder. The chalk-beds of England are many hundred feet thick, and many miles in extent. Who raised this wall of white around that coast? Who piled up those precipitous masses, from which all the labor and skill of man can only detach a few comparatively insignificant morsels? "We did!" utter a myriad-million animalcules, whose dead bodies are thus beheld. It is beyond conception; but the microscope assures us of the fact. These vast beds are composed of the shells of infusory animalcules. A "line" is the 12th part of an inch. Now these creatures vary from the 12th to the 280th part of a line in thickness! It has been calculated that ten millions of their dead bodies lie in a cubic inch! "Singly," says a popular writer, "they are the most unimportant of all animals; in the mass, forming as they do such enormous strata over a large part of the earth's surface, they have an importance greatly exceeding that of the largest and noblest of the beasts of the field." Theirs is a safe humility; for while the greater creatures have many of them become extinct, and left no posterity, the descendants of the ancient earth-architects live and thrive to this very hour. The polishing-slate, or tripoli of Bilin, presents us with another instance in point. The investigation of that greatest of microscopical observers Professor Ehrenberg, have shown that this substance consists almost entirely of an aggregation of infusoria in layers, without any connecting medium. These are much more minute than the chalk animalcules. A cubic line contains about twenty-three millions of them, and a cubic inch has been calculated to be the cenotaph of forty thousand millions of these beings! The weight of a cubic inch is about 220 grains, and that of the siliceous shield of a single animalcule is estimated at the 187,000,000th part of a grain! The infusorial rock at Bilin forms a bed fourteen teet in thickness. Two origins are now ascribed to limestone—one, that of chemical precipitation; the other, which has a direction with our subject, ascribes the formation to the labors of the infusoria. There can be no doubt that many of the enormous beds of this substance with which we are familiar, are the results of the accumulation of innumerable millions of these tiny creatures. They swarm in all waters, indifferently in salt as in fresh; and secreting from the lime held in solution by such water the necessary material for their shields or calcareous skeletons, they form by their enormous aggregation in process of time the vast strata of which we speak. For this purpose, it is necessary that they should be capable of multiplying immensely; and this they do by the different processes of spontaneous fisuration, germination, and the development of ova. The white calcareous earth so common at the bottoms of bogs and morasses has its origin in the ceaseless labors of these creatures; and the "bog-iron ore" of geologists consists of the ferruginous shields of others. Thus, as has been aptly remarked by the old Latin proverb, "iron, flint and lime all formed by worms," which was probably a sly sarcasm against philosophy, modern science has shown to be actually true in the history of the animalcules. The Great Pyramid of Egypt has been looked upon by men as a miracle of human power and skill: yet every stone in its composition is a greater far, for the limestone of which this vast structure is built was erected long ago by an army of humble animalcules more numerous than all the hosts of a thousand Pharaohs. It has been finely said by Young—

Where is the dust that has not been alive?

though perhaps he little knew the wide application of the truth he was enunciating.

Bleaching Straw.

A careful culture insures a requisite degree of fineness and firmness in the material, but for most purposes the color must be diminished or removed. This may be done dy chlorine, sulphurous acid, alkali or atmospheric agents but a violent process injures the fibrous texture. It may be steeped in pure fresh water, for several weeks exposed to the air and then sulphured. According to Kurrer it may be perfectly whitened by repeated steeping in boiling water and very weak alkali, which removes all soluble matter, then treated alternately with very dilute solution of chloride of lime and sulphurous acid vapor, finally washed and dried in the sun. The process is tedious, but it said to remove the varnish which makes the natural straw brittle and to render the fibre brilliant, white and pliant.

It is even more difficult to explain the bleaching process by means of sulphurous acid than that by chlorine. It is generally assumed that the acid combines directly with the color without either giving or receiving oxygen and forms a colorless or slightly colored compound with it; for by the action of alkali or a stronger acid, the original color is restored; and hence also, the color reappears on sulphured goods in the lapse of time by the gradual dissipation of sulphurous acid. The action of of alkali in the above operations with wool, silk and straw, depends simply on the solubility of the coloring or other matters in the alkaline solution.

The English papers admit there is large deficiency in their crops but seem to rejoice that the United States can supply all their wants

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TO CORRESPONDENTS.

"H. C. of Geo."—You will have received your india rubber by this time. We know of no person at present who wishes to embark for a foreign patent. The invention is particularly valuable to America, but only of minor value in any other country, except Egypt and the East Indies.

"W. S. H. of N. Y."—Ashur's Practical House Carpenter, costs $5. Every No. of Ranlett costs 50 cents. You have the fire of poetry within you, but if you re-examine and rewrite, you will find room for improvement. We never correct poetry for the press, therefore it must come correct in every part. Now you will perceive that your rhyming lines do not coincide in syllables, which must be the case for the public.

"A. B. of Ct."—Your planes arrived in good order. They look very neat and will undoubtedly answer well. We are proceeding with your Patent business and in a few days you will hear from us.

"D. V. of Ohio."—Such a brake as you mention would be of great value. Please send us a more full description. Nos. 1 and 2, Vol. 3, are all gone. $2, all right.

"A. B. of Wheeling."—We were happy to receive yours on the 23d. Accept our thanks $3.

"W. E. of Pa."—There are a great number of Brick Machines. Mr. Grant of Providence, R. I. has a good one, also J. W. Ward of Cambidge, Mass., also Mr. Adams of Canterbury, Orange Co. N. Y. The latter gentleman's machine we have seen and it is good.

"J. B. F. of N. Y."—Your caveat and drawings are received. We cannot afford to examine your invention as minutely as you request, and reply to *all* the enquiries made, without being partially remunerated for the time it will require to examine it. Please send us $3 and you shall hear from us immediately.

"C. L. Y. of Ohio."—We have answered you before. Ear trumpets are made in this city, and no doubt in Cincinnati also.

☞ Some of our correspondents must excuse us from replying to them till our next number. We are getting "posted up" now, and will attend to the wants of all our friends without further delay.

International Postage.

The proposition made by the Marquis Clanricarde, the British Postmaster General, to Mr. Bancroft, and declined by the latter is to the effect : that the sea postage of ninepence sterling should be the rate paid to the steamer (English or American) on each letter, and threepence sterling should be the British inland postage—for which it would be delivered to all parts of the country including transit postage to the Continent. The American inland postage to remain as now, 5 or 10 cents according to the distance. We can see no reasonable objection to this proposition ; on its face it appears perfectly reciprocal. The threepence British inland postage will about average our inland rates, and the ocean transmission is equal, each government acting as agent for the other in receiving the prepaid ocean postage.

The Niagara Falls Suspension Bridge Case.

We are happy to hear that the parties who took violent possession of the east end of the Suspension Bridge, were, on the 11th inst., brought before his honor Judge Gardiner, (Lockport,) for a riot, and bound over to the Court of Oyer and Terminer, and General Jail delivery. An inquest was also held before his honor, under the statute against forcible entries and detainers, to enquire into the same case. The examination lasted two days, and resulted in an unanimous finding of the Jury against the persons thus taking forcible possession.

The Judge, in deciding the law, gave it as his opinion that Mr. Ellet had no possession or right of possession in the *locus in quo*, except as agent of the Company, and that this possession was their possession, which they had a right to end whenever they pleased.

The case was ably argued on both sides.—Counsel for the Company, Nathan Dayton and Lot Clark ; for the Defendants, John T. Bush and George Clinton of Buffalo, and Joshua A. Spencer of Utica.

Improvement in Railroad Cars.

Messrs. Nettleton & Bartlett, Car Makers, in Springfield, Mass. have made some very important improvements in Cars for grading roads, transporting coal, brick, stone and other freight. The cars are what are generally termed *Dumping Cars*, and are so constructed that they receive the tonnage upon the top of the trucks and upon full bearings, thus dispensing entirely with the "suspended rocker," which holds the tonnage upon two points only.

The cars are brought lower down, about the height of common freight cars, so that they can be joined with any train of freight cars with the utmost safety, and this is certainly a great advantage over the common kind. The tonnage is borne along as steadily as if on the platform of any freight car, and they are made so as to discharge the load (almost self-acting,) farther from the truck, more easily than by the "rocker car."

The cars of the above gentlemen, well known in the railroad world, have been tried since July last, to the great satisfaction of the able superintendent, Isaac Hinckley, Esq., of the Providence and Worcester Railroad, and another train has been ordered to be constructed to transport coal up the valley of Blackstone, R. I.

We have seen a model of these cars and testimony of their practical results. In a short time we will be enabled to present a more minute description with an engraving.

Picket Machine.

The machine for turning Pickets which was represented in our last number has been sold.

Advertisements.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eight inch more shingles can be sawed in the same given time than by any other machine now in use. Manufactured at Augusta, Me. and Albany, N. Y. J. G. JOHNSON.
Augusta, Maine, Oct. 28, 1848. o28 1y

The Best Patent Agency in the United States.

THE subscribers would respectfully give notice that they still continue to attend to Patent Office business as usual. The long experience they have had in securing patents, together with their unrivalled facilities, enables them to say that THE BEST PATENT AGENCY, in the United States, IS AT THE OFFICE OF THE SCIENTIFIC AMERICAN, New York. It is not necessary, as commonly supposed, for an inventor to make a journey to Washington in person, in order to secure a Patent, as he cannot in any manner hasten the Patent or make his invention more secure. Any business connected with the Patent Office may be done by letter, through the Scientific American Office, with the same facility and certainty as though the inventor came in person. From a want of knowledge on this point, applicants for patents are often obliged to submit to great vexation, with loss of much money and time. They also frequently fall into the hands of designing persons, and lose their inventions as well as money. Those who wish to take out Patents or enter Caveats, should by all means have the business transacted through the Scientific American Office, as they may then rely upon its being done in a straight forward and prompt manner, on the very lowest terms. All letters must be Post Paid and directed to MUNN & CO.,
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To Mill Owners.

HAVILAND & TUTTLE'S Patent Centre Vent Pressure Water Wheel.—These wheels are now in successful operation in many towns in Maine, Massachusetts, and Rhode Island, and are found to surpass in power and facility of adaptation any water wheel now in use. This wheel was awarded the silver medal at the Fair of the American Institute recently held in New York and a diploma at the Mechanics' Fair in Boston.

The wheels are manufactured and for sale by the FULTON IRON FOUNDRY CO., South Boston, Mass.,—where the wheels can be seen and any information concerning them had.

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Those Hats

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THE WEST STREET FOUNDRY, corner of Beach and West streets, will furnish at the shortest notice, Steam Engines and Boilers in all their varieties, and on the most reasonable terms, together with castings of brass or iron, and machinery in general. Orders attended to with dispatch, and particular attention given to repairing.
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THIS Machine, on which Letters Patent were granted May 1st, 1847, has been in successful operation for the past year, and hundreds of thousands of staves have been dressed by it. It is warranted to dress the same quantity of staves with as little power as any that can be started, also leave the full thickness on thin edges and thin ends, and conform as near to the crooks and twists of the timber as can be desired. The jointing of the machine which accompanies it, has been subjected to the severest test, and pronounced superior to that performed by hand. Application for a patent on the Jointer has been made.

Large quantities of Hogsheads and Shooks made with staves dressed and jointed with their machines have been sold and used to the entire satisfaction of the purchasers.

For rights and machines address the proprietors at their Manufactory, Artizan street, New Haven, Connecticut, where machines in full operation may be seen. JUDSON & PARDEE.
New Haven, July 17, 1748. jy29 3m*

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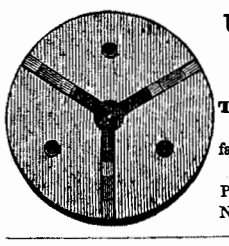

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Charles E. Hutchinson
Refer to : John Lorimer Graham, N. Y. ; Walworth & Nason, Boston ; Lewis Lerow, Boston ; Rev. R. W. Cushman, Washington o21 2t*

POWER TO LET—RARE CHANCE.

THREE rooms, 40 feet square, one room 60 by 40 feet, 2nd floor, power from engine, 25 in. cylinder, 4 1-2 feet stroke. Let together or in parts. Apply at West street Foundry, corner of Beach and West streets. s23 3m

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For the Scientific American.

New Chemical Law.

No. 6.

As the compounds of the substances composing the aggregated series derived by the aggregation of C H, are more particularly known, I shall give a few more examples. The following example of double hydrates comprises substances well known.

Pyroxilic Spirit 2 C H.+2 H O. specific gravity ,796—boiling point 140°—fluid.

Common Alcohol 4 C H.+2 H O. sp. grav. ,796—boil. pt. 173°—fluid.

Oil of Potato Spirit 10 C H.+2 H O. sp. grav. ,812—boil. pt. 270°—fluid.

Ethal 32 C H.+2 H O.—solid.

There is some difference in the experiments of chemists as to the true specific gravity of pyroxilic spirit and common alcohol; some considering the specific gravity of pyroxilic spirit as ,798, that is above common alcohol, whilst others consider them both of the same specific gravity. If we consider the slight difference between the specific gravities of common alcohol and the oil of potato spirit, and then compare the intervals of position which they occupy in the aggregated series, with the intervals of position which pyroxilic spirit and common alcohol respectively occupy, we are not surprised to think that chemists could find but little difference between their specific gravities. By the nature of the law, the difference can be but a trifle, say three or four parts at the most; but the specific gravity of common alcohol must be greater than that of pyroxilic spirit. As it is, the specific gravities are on the increase; the same may be said of the boiling points, which increase in the most regular manner. The density of the substances also increase with the series, the first three being fluids and the fourth a solid The specific gravity and boiling point of Ethal should be greater than those of the oil of potato spirit. The similarity of the chemical properties of the above substances, may also be noticed. Thus the similarity of the two former are complete, but as the substances increase in the series, it gradually changes, until we arrive at the chemical properties of Ethal, which is only different from the first two compounds, by reason of their distant situation in the series If we were in possession of a compound of the same aggregated series, and nearly similar to composition to Ethal, then it would possess similar chemical properties. The following example illustrates the composition of their single sulphurets.

Sulphuret of Methyle 2 C H.+S H. sp. grav. ,845—boil. pt 104°—fluid.

Sulphuret of Ethyle 4 C H.+S H. boil. pt. 167°—fluid.

Sulphuret of Amyle 10 C H.+S H.—fluid.

The specific gravities of the above substances have not been ascertained. The boiling points however agree with the conditions required. The following gives an example of their double sulphurets.

Doub. Sulph. Methyle 2 C H.+2 S H. boil. pt. 70°.

Doub. Sulph. Ethyle 4 C H.+2 S H. sp. grav. ,842—boil. pt. 97°.

Doub. Sulph. Amyle 10 C H.+2 S H. sp. grav. ,835—boil pt. 243°.

The boiling points in this example are also perfectly in accordance with the general requirements of the law. The specific gravities also appear to decrease, which is owing to the superior specific gravity of the sulphur, although it would be unsafe to assert it as a fact, on account of the slight difference between the specific gravities given, which might possibly be erroneously computed. The following gives an example of their chlorides.

Chloride of Methyle 2 C H.+Cl. H. gas.

Chloride of Ethyle 4 C H.+Cl H. sp. grav. ,874— boil. pt. 52°—fluid.

Chloride of Amyle 10 C H.+Cl. H. boil. pt. 217°—fluid.

The boiling points of the above substances are also in perfect order; the chloride of methyle being a gas at common temperatures, must for reasons previously given, possess a boiling point far below that of the chloride of ethyle. The other conditions are also fulfilled. The Bromides might properly be introduced here, but as their specific gravities, boiling points, &c have not been calculated, I shall in their place introduce the Iodides, which gives an example agreeing perfectly with the conditions required.

Iodide of Methyle 2 C H.+I H. sp. grav. 2,237—boil. pt. 112°.

Iodide of Ethyle 4 C H.+I H. sp grav. 1,921 —boil. pt 161°.

Iodide of Amyle 10 C H.+I H.

In this case the specific gravities decrease as the series increase, and consequently the specific gravity of the iodide of amyle should be less than the specific gravity of the iodide of ethyle. The reason why the specific gravities decrease, is owing to the superior specific gravity of the iodine, and is in accordance with the requirements of the law. The boiling points also increase, and there is no doubt but the boiling point of the iodide of amyle is greater than that of the iodide of ethyle. All compounds of the aggregated series given, must conform to the conditions required by the law, however complex their organisation.

S. N.

Bridgeport, Conn.

For the Scientific American.

Evaporation of the Watery Particles in Butter.

As the good of the agricultural portion of the community receives a considerable degree of your attention, I would ask if it ever occurred to you that the principle of evaporation in vacuo could be applied to the separation of the watery matter from butter. Say take a box of suitable size made of wood, and lined with lead, the cover so fitted as to be air tight. The box must be of such length as to leave a space below the bottom of the pan that contains the butter for the introduction of a few lumps of quick lime. An exhausting syringe of simple construction will complete the machine. Butter by an operation such as this, can be so completely drained of its moisture as to keep sweet for an indefinite time. The butter must be submitted to this operation before the addition of salt.

A Subscriber.

Artifical Mahogany.

The following method of giving any species of wood of a close grain, the appearance of mahogany in texture, density, and polish, is said to be practised in France, with such success that the best judges are incapable of distinguishing between the imitation and mahogany. The surface is first planed smooth, and the wood is then rubbed with a solution of nitrous acid. One ounce of dragon's blood is dissolved in nearly a pint of spirits of wine, this and one-third of an ounce of carbonate of soda are then to be mixed together and filtered and the liquid in this thin state is to be laid on with a soft brush This process is to be repeated, and in a short interval afterwards the wood possesses the external appearance of mahogany. When the polish diminishes in brilliancy, it may be restored by the use of a little cold drawn linseed oil.

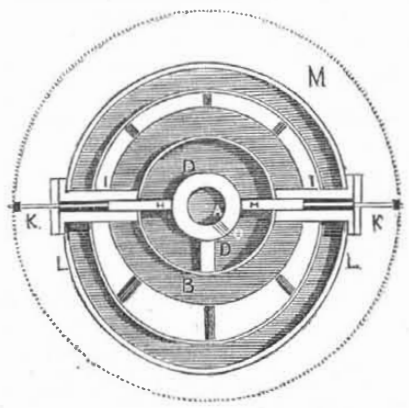
To obtain fresh blown Flowers in Winter any day one chooses.

Choose some of the most perfect buds of the flowers you would preserve, such as are latest in blowing and ready to open, cut them off with a pair of scissors leaving to each, if possible, a piece of the stem about three inches long; cover the end of the stem immediately with sealing wax: and when the buds are a little shrunk and wrinkled wrap each of them up separately in a piece of paper, perfectly clean and dry, and lock them up in a dry box or drawer; and they will keep without corrupting. In winter, or at any other time, when you would have the flowers blow, take the buds over night and cut off the end of the stem sealed with wax and put the buds into water wherein a little nitre or salt has been diffused and the next day you will have the pleasure of seeing the buds open and expand themselves and the flowers display their most lively colours and breathe their agreeable odors.

History of the Rotary Engine.

Prepared expressly for the Scientific American.

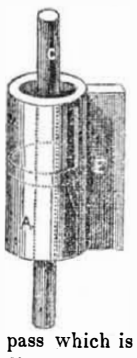
Fig. 11.



BRAMAH AND DICKINSON'S ROTARIES.

This is another rotary embraced in the same patent as the one in the Scientific American of last. In this the sliders are in the periphery of the outer cylinder, and the water, steam, or other fluid, passes first into a smaller or inner cylinder, previous to its producing its effect in the channel or groove, as in the other example. A is the end of a hollow smaller cylinder, placed in the centre of the larger cylinder B; the cylinder A is fixed on an axis or spindle C, as in the section. D D, is the channel or groove, formed between the outer surface of the cylinder A, and the inner surface of the cylinder B; to the cylinder A, is fixed a wing or fan E, of a projection sufficient to fill and act in the channel D D, as a piston, when A is turned round by the axis or spindle C, so as to sweep the contents of the channel; or, when any force is applied on one side of the surface, it will cause the cylinder A, and the axis or spindle C, to be turned round. The cylinder A is left open at both ends, which pass through the plates F F, into the caps, and is fitted water-tight in the junctions. In or about the middle of the cylinder A is a chamber or partition, which divides the upper end from the lower; H H, are two sliders, stationed at opposite points in the periphery of the outer cylinder B, where there are cells projected as at I I, to receive them and allow their motion. These sliders are moved by the small spindles K K, passing through stuffing boxes in the usual way. They are ultimately opened and shut by half the rotation of the inner cylinder, by means of a wheel with an eccentric groove fixed on the axis, as L L. In this groove move two friction wheels, which being joined to the sliders by a connecting bar, the sliders A A, are opened and shut, by the axis C turning round, so that one of the sliders H H, is always close shut against the cylinder A, whilst the other is opening to let

Fig. 12.



the wing or fan pass which is again shut before the passage slider begins its motion. The machine being thus complete, suppose that, at a pipe O, a current of water, steam, or other fluid having force, was admitted into the cap whilst the machine is in its present position, it would immediately fall into the upper cavity of the cylinder A, and, passing through the aperture into the channel D, would press against the wing or fan E, on the one side, and against one of the sliders H H, on the other; which slider not giving way would cause the wing or fan E to recede, and turn round the cylinder A with its axis C; which axis, turning the wheel with the groove L L, would cause the opposite slider to begin its motion; so that by the time the wing or fan E reaches the station of the slider, it is totally drawn back into its cell, so as to permit the wing or fan E to pass without interruption; and, by the continued motion of the machine, the slider is again shut, before that slider on which the fluid is pressing begins to move; so that, when the first slider, against which the water or fluid is still pressing, is opened, the pressure is then the same between the other slider and the wing or fan E; and the spent fluid between the two sliders immediately rushes through the lower aperture into the bottom of the cylinder A, and is carried off in that way to the open air: thus a uniform rotation will be maintained as in the former example.

This engine is very simple and will make a very useful rotative machine. But no packing except metallic will answer in the grooves of the sliders. It however has a general defect of rotary engines viz., the difficulty of keeping it tight. This engine was published in the Repertory of Arts and made some figure in the world when it was brought before the public —but oblivion in practice, has thrown a veil over its results.

Preserving Eggs.

Some time ago, a Mr. Jayne, of Yorkshire in England, adopted the following process for preserving eggs, which he says kept them in a good condition two years. He obtained a patent for the mode in England, but that will not prevent any one in this country from using it if he likes.

Take one bushel of quick lime, thirty-two ounces of salt, eight ounces of cream tartar.—Mix the salt together with as much water as will reduce the composition to a consisteney that an egg when put into it will swim. The eggs may now be put into it and be kept down by a board with a gentle pressure upon it.

New Cloak.

A new cloak for the ladies has been invented in Paris, and is called the Mantua Marguerite. It is made of velvet, in the form of a shawl and is trimmed with three rows of black lace headed by a narrow silk braid.

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